**PROBLEM STATEMENT**

Develop a systematic approach to find the optimal grouping of shipping customers to prioritize Marketing & Sales interventions and maximize Customer Life Time Value.

1. A standardized valuation framework for shippers does not exist.
2. Shippers are not systematically prioritized with respect to ‘value.’
3. Changes in shipper performance with respect to resources spent on the shipper are not tracked. Impact can not be measured.

**OBJECTIVE**

- Segment Customers
- Predict Opportunity
- Guide Marketing Decisions
- Communicate Output
- Prove Impact

**DATA**

Simulated snapshot of 2,332 Amazon Freight customers from January 2023.

**IMPACT**

Our project will save time and resources for the sales and marketing team. Our model:

- Removes the time it takes for a marketing employee to find who they are going to market to.
- Creates more intuitive and accessible actions for marketing and sales employees.
- Is at least 15% more accurate in guiding marketing decisions.
  - This translates to saving 1.2% of Amazon Freight’s revenue.

**MODEL**

<table>
<thead>
<tr>
<th>R</th>
<th>+</th>
<th>F</th>
<th>+</th>
<th>M</th>
<th>=</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Recency</td>
<td>Order Frequency</td>
<td>Lifetime Value</td>
<td>Opportunity Score</td>
<td></td>
<td></td>
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<tr>
<td>Number of days since last shipment</td>
<td>Average number of days between orders</td>
<td>Annual revenue generated adjusted for inflation</td>
<td>Quantified ‘room for improvement’</td>
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**Clustering**

Clustered shippers using k-means algorithm:

- **Elbow Curve** and **Silhouette Score** employed to determine optimal number of clusters.
- Clusters built around similar shipping traits.
- Facilitates direct, unbiased comparison between shippers.

**Opportunity Calculator**

Calculated & normalized with respect to its cluster

\[ O = c_1(R - R_c) + c_2(F - F_c) + c_3(M - M_c) \]

*coefficients* adjust opportunity score priorities based on market conditions.

**Clusters**

- A shipper has higher opportunity the further away its RFM is from the cluster centroid.

**RECOMMENDATIONS**

- Find the optimal marketing strategy for a new customer using generative feedback & live data.
- Gather time series data on customers to analyze shipping trends.
- Build a module which combines live-updated opportunity scores with the sales and marketing budgets data to recommend expenditures.

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